

PROCEEDINGS  
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BIOLOGICAL SOCIETY OF WASHINGTON

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WEST AMERICAN MITRIDÆ—NORTH OF CAPE  
ST. LUCAS, LOWER CALIFORNIA.

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BY MRS. M. BURTON WILLIAMSON.

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As the nomenclature of our West Coast Mitras appears to be somewhat confusing, it has been thought advisable to review some of the literature upon this subject and also to give excerpts from letters written upon the synonymy by well known authorities. As indicated by the title this paper does not include Gulf species—nor are fossil forms included unless represented by recent shells.

The writer desires to acknowledge her obligation to Dr. William Healey Dall and Dr. Paul Bartsch, of the U. S. National Museum, Prof. James Cosmo Melvill, of Shrewsbury, England, Mr. Edgar A. Smith, British Museum, Sowerby and Fulton, London, England, Dr. R. E. C. Stearns, Mr. Henry Hemphill and Fred L. Button, Esq., of California, for courtesies received from them. She is especially indebted to the British Conchologists for original descriptions of *Mitra idæ* Melv., *M. fultoni* E. A. S., and a very fine, typical example of *M. orientalis* Gray = *M. maura* Swains.

FAMILY MITRIDÆ.

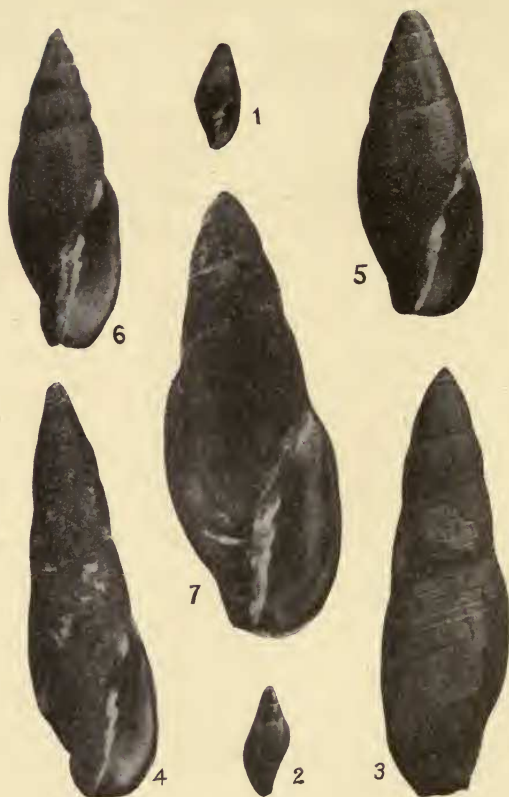
*Mitra episcopalis* Lam, the type of this Mitriform family, ranks high among showy shells but the West Coast representatives are noted for their somber aspect.

Of the relationship of this family, Dr. William Healey Dall says: "While I have no doubt in my own mind that *Voluta*, *Scaphella*, *Turbinella*, *Fasciolaria*, *Mitra* and the *Fusidæ* all proceeded from one stock and could not be separated as families in the Eocene time, yet that does not exclude the recognition of the divergencies which have been brought about at the present epoch, by gradual evolution from more compact original groups.\*

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\* Trans. Wagner Free Ins. Sci., Phila., Vol. III, 1820, p. 92.





## WEST COAST MITRAS, NAT. SIZE.

- Figs. 1 and 2. *Mitra idæ*, young. San Pedro, California.
- Figs. 3 and 4. *Mitra idæ*, adult. San Pedro, California. Epidermis partly removed. No. 4 collected by Mrs. E. A. Lawrence.
- Fig. 5. *Mitra idæ*, adult. San Pedro, California. Epidermis wholly gone, color of shell light brown. Collected by Mr. Delos Arnold.
- Fig. 6. *Mitra fultoni* E. A. S. Pt. Abreojos, Lower California. Collected by Mr. Henry Hemphill.
- Fig. 7. *Mitra orientalis*. Peru.

## GENUS MITRA LAM.

Mitra—typical—is mitriform, thick, with spire elevated, sharp apex, aperture narrow with a notch in front; “columella obliquely plicate; lip rather thick, smooth within.” The animal is described as having in general a short foot, siphon somewhat short, proboscis cylindrical, eyes on tapering tentacles, the latter close together on a long and flat head; color white. The dentition of the group is an important factor.

**Mitra idæ** Melvill.

*Mitra idæ* Melv., Description of a New Species of Mitra, The Conchologist, Vol. II, part 6, p. 140, pl. 1, fig. 6, 1893; Sowerby and Fulton's Catalogues of Recent Mollusca.

*Mitra maura* Swainson non Carpenter Report Brit. Asso. Ad. Sci. for 1856, London, 1857: Report B. A. A. S., 1863, pub. 1864; Cooper,\* Geographical Cat. Moll., 1867; Tryon Man. Conch., Vol. IV, p. 121, 1882; Orcutt, Proc. U. S. Nat. Mus., p. 336, 1885; Cooper, Seventh An. Report State (Calif.) Min., p. 251, 1887, pub. 1888; Keep, West Coast Shells, p. 42, 1887; Bowers,† Ninth An. Report State (Calif.) Min., p. 58, 1889, pub. 1890; Hemphill, Cat. N. Amer. Shells, p. 2, 1890; Yates, Bull. Santa Barbara Soc. Nat. Hist., p. 44, 1890; Williamson, Proc. U. S. Nat. Mus., Vol. XV, p. 211, 1892; Kelsey, The Nautilus, Vol. XII, p. 89, 1892; Arnold, Mem. Cal. Acad. Sciences, p. 222, 1903; Keep, West Am. Shells, p. 166, 1904; Arnold, The Tertiary and Quaternary Pectens of California (P. P. No. 7, U. S. Geological Survey), p. 36, 1906; Williamson, Some W. American Shells,—Including a New Var. of *Corbula luteola*, etc. (Bull. S. California Acad. Sciences) p. 123, 1905.

It is evident from the synonymy that the West Coast shell commonly called *Mitra maura* Swains. was presumed to be like the one from Peru described by Swainson (Proc. Zool. Soc. 1835). When Miss Ida Shephard—Mrs. Oldroyd—for whom the shell was named, sent the California shell as *M. maura*, Mr. Fulton, on comparing it with those in the British Museum from Peru, detected the difference and invited Prof. James Cosmo Melvill, M. A., F. L. S., who had described something like 40 species of Mitras, to describe it. The specimen was from Point Loma, California, length, 2.25 in., diam. .75 inch.

In his description Prof. Melvill says: "This interesting species belongs to a section of the genus which has its headquarters on the western shores of North America and Mexico, of which *Mitra lens* (Wood) may be taken as the type, all the species possessing a black or dark-brown epidermis, and being more or less decussate or puncto-striate, and it is not unlike the recently described *M. fulltoni* (E. A. Smith) from the same locality. Differentiation, however, seems easy between them." (Des. of a New Species of Mitra by James Cosmo Melvill, M. A., F. L. S.)

Specimens of Mitras from San Pedro and San Diego, that were locally known as *M. maura*, were submitted to Professor Melvill by the writer, and he unhesitatingly pronounced the larger ones the same as the type specimen, in his possession, of *M. idæ*. Young specimens of *M. idæ* are lighter brown in color and smooth, although occasionally one is found which shows the liræ.‡ Of the shells submitted ½ he wrote that they dif-

\* In Cat. W. N. Amer. and Foreign Shells, with Geog. Ranges and Labels, etc., by J. G. Cooper (State Min. Bu. Spr. 1894), *Mitra maura* is listed as "Sowerby's" instead of "Swainson's," evidently a misprint as Dr. Cooper cites the authority correctly elsewhere.

† *Mitra maura* Rve. (?) evidently a misprint.

‡ Prof. F. W. Kelsey has kindly given the writer the following measurements of young Mitras: "The two best young specimens I have measure 7x17 mm. Ratio 2.43. The adult *M. maura* 21x68 mm. Ratio 3.24, and 18x58 = 3.22, while the *M. fulltoni* are in same ratio. The juv. specimens, therefore, you notice are far from same proportions as the adult, although having all the markings and coloring of (*idæ*) *maura*."

§ See figures on page 194.

ferred in toto from what he had "always called *M. orientalis* Gray,=*M. maura* Swains. from Peru and Chilian Coasts." That species called *M. chilensis* by L. C. Kiener is admirably figured under the latter name by Kiener Coq. Viv., Mitra, tab. 10, figs. 28, 28a. That shell is larger and broader than the Californian shell, smoother and more shining—the spiral pitting microscopical, the shape of the mouth distinct, more effuse, outer lip and the whorl pinched in towards the center as in the Californian species—plicæ of columella slightly more oblique.\* Upon further comparison between *M. orientalis* (*M. maura*), and *M. idæ*, Professor Melvill says of the first named, that it corresponds "exactly with the plate in Sowerby's Thesaurus Conchyliorum III, Pl. 354 (Mitra) t. 40, being a more incrassate, uncouth shell than *idæ* and apparently smooth, uniformly black; with a lens, slight pitting is discernable. The form of the mouth is also quite different from *idæ*."† He adds that English Conchologists "such as Mr. G. B. Sowerby, Mr. Edgar A. Smith, Mr. Sykes, and Mr. Fulton all recognize the specific differences between *idæ* and *maura* (*orientalis*)." Dr. Wm. H. Dall and Dr. Paul Bartsch also agree that, "The California species is distinct and should retain the name *M. idæ* Melv."‡

The fine example (Fig. 7) of Mitra from Peru, received, through the courtesy of Professor Melvill, from Sowerby and Fulton, bears this label:

"*Mitra orientalis* Gray 1834  
— *maura* Swainson, 1835  
— *chilensis* Keiner, 1839."

The whole question evidently resolves itself into this: Swainson's *Mitra maura* has not been found upon the Californian Coast, and, Swainson's *Mitra maura*, on account of priority, is now called *M. orientalis*.§ *M. orientalis* is not found north of Cape St. Lucas, Lower California, and the geographical listing of this species is incorrect. While P. P. Carpenter lists *M. maura* among the Upper California Fauna in his Report on Moll. of W. Coast of N. Amer. in 1856,|| in the British Rep't for 1863, he has this note: '*Mitra maura* Swains. Nutt. = *orientalis* Gray = *chilensis* Gray, Kien. Very dark and plain. Peru. Sand between rock l. w. Cuming,' in Carpenter's Catalogue of Mazatlan Shells (1857) there is no mention of *M. orientalis* (*maura*) in place there are *Mitra lens* Mawe, and *Strigatella tristis* Brod. Dr. R. E. C. Stearns also lists *M. lens* and *M. tristis* among other Mitras but does not include *M. orientalis* among the "Shells of the Tres Marias" (Proc. U. S. Nat. Mus., Vol. XVII, pp. 139-204).

Of *Mitra idæ* in regard to relationship with other black Mitras from West Coast of U. S. A. and South America, Professor Melvill says: "lens, maura (*orientalis*), caliginosa, fultoni, idæ and others may have been derived from a common ancestor."

\* Letter.

† Letter.

‡ Letter.

§ Of the name *orientalis* for this shell, Professor Melvill writes: "It is an unfortunate name, certainly, being a shell of the Western, not the Eastern hemisphere and is exactly in the same position, therefore, as *Cypræ (Trivia) madagascariensis*, which, as everybody knows, does not occur anywhere near Madagascar."

|| Binney's Bibliography of N. Amer. Conchology, Vol. I, p. 300.

**Mitra fultoni** E. A. Smith.

*Mitra fultoni* Smith Descriptions of New Species of Shells from Mauritius and California (An. & Mag. Nat. Hist., p. 256, figured, March, 1892); Williamson, Some West Amer. Shells, etc. (Bull. S. Cal. Acad. Sciences, Vol. IV, No. 8) p. 123, 1905.

This shell, as well as Professor Melvill's, is described in a Latin note and is figured very finely. The type is from Point Abrejos, Lower California. Long. 39 mm. diam. 13; aperture  $19\frac{1}{2}$  long; 5 lat.

Dr. Dall writes he has seen "none from north of San Diego." Lately they appear to be very scarce at that place as Professor Kelsey says he has found none there.

In his description, Mr. E. A. Smith says: "This species is well characterized by the punctate sulci; the punctures falling in regular, longitudinal rows, through which pass well-marked impressed lines of growth." This character of punctate sulci is a very noticeable one; the pitting wider and deeper than in *M. idæ* is a prominent feature. As compared with *M. orientalis* Gray, Mr. E. A. Smith says: "The whorls are more convex, the epidermis blacker, and the fine spiral striæ which adorn the surface of that species are scarcely indicated in the present form." Professor Melvill says: "The outer lip is more effuse than in *M. idæ*." Fred L. Button, Esq., writes: "I have made a pencil sketch (for you) of my specimen of *Mitra fultoni* which gives a fair idea of this species. It is brown, has quite a shoulder below the suture and has a few indistinct revolving lines of sculpture." The figure referred to is more shouldered than any I have seen. While adult specimens of *M. idæ* and *M. fultoni* exhibit differentiation the young of both species might indicate a common ancestry at no very distant era.

Of the animals, Mr. Henry Hemphill writes: "The animals of all the Mitras found on the coast of Southern California, so far as I remember, are white, whether we call them all *maura* or *fultoni* or *idæ*." This agrees with d'Orbigny's note on tropical American species.

**Mitra lowei** Dall.

*Mitra lowei* Dall, Diagnoses of New Species\* of Mollusks from the Santa Barbara Channel, California (Proc. Biol. Soc., Wash., Vol. XII, pp. 171-176, Dec. 31, 1903), Keep, W. Amer. Shells, 1904, p. 321.

This shell, dredged near Avalon, Santa Catalina Island, Cal., by Herbert N. Lowe, is described by Dr. Dall as belonging to a type of *M. fulgurita* Reeve,† but of markedly different proportions. The nucleus is very distinct from that of the type of *M. barbadensis*, etc. "The only specimen seen is clearly immature, but it is not the young of any of the species known to inhabit the coast and is sufficiently characteristic to be easily recognized." Length 5.5; of last whorl 4.5; diam. 2.5 mm.

This yellow-brown shell was dredged with other shells at a depth of water from 40 to 60 fathoms.

\* In this paper Dr. Dall also describes *Mitra dolorosa* from the Gulf of Cal., but as this article does not include Gulf species it could not be listed.

† For geographical range of this species consult Dr. Dall's Marine Mollusks of S. Eastern Coast (Bull. 37, U. S. Nat. Mus.) p. 110, 1889.